

Notice of Allowability

Application No.

10/667,140

Applicant(s)

BICSAK ET AL.

Examiner

William H. Wood

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 26 April 2007.
2. ☒ The allowed claim(s) is/are 1-5 and 7-17.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____. | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Alfred A. Fressola on 25 May 2007.

The application has been amended as follows:

Claim 1

A method comprising:

creating a control flow graph of a computer program having instruction sequences, said control flow graph including basic blocks of instructions, each basic block having a last instruction,

traversing through the basic blocks in order to detect multiple occurrences of a same instruction sequence which includes said last instruction for each of at least two basic blocks,

creating a function including a longest sequence of last instruction sequences common to said at least two basic blocks and which includes said last instruction for each of said at least two basic blocks, said longest sequence from a plurality of sequences of last instruction sequences common to said at least two basic blocks and having a common instruction sequence of equal or

shorter length compared to said longest sequence, said longest sequence including the equal or shorter length sequences of said plurality of sequences, and

replacing the original occurrences of said instruction sequences in said plurality of sequences with a reference to a proper position in said created function.

Claim 2

~~A method of claim 1~~ A method of claim 1, wherein the blocks are traversed in a direction opposite to execution of said blocks.

Claim 8

A computer program product comprising code stored on a readable storage medium for execution by a processing unit so as to carry out:

creating a control flow graph of a computer program having instruction sequences, said control flow graph including basic blocks of instructions, each basic block having a last instruction,

traversing through the basic blocks in order to detect multiple occurrences of a same instruction sequence which includes said last instruction for each of at least two basic blocks,

creating a function including a longest sequence of last instruction sequences common to said at least two basic blocks and which includes said

Art Unit: 2193

last instruction for each of said at least two basic blocks, said longest sequence from a plurality of sequences of last instruction sequences common to said at least two basic blocks and having a common instruction sequence of equal or shorter length compared to said longest sequence, said longest sequence including the equal or shorter length sequences of said plurality of sequences, and

replacing the original occurrences of said instruction sequences in said plurality of sequences with a reference to a proper position in said created function.

Claim 9

A ~~carrier~~ storage medium carrying a computer executable program for carrying out the method of claim 1.

Claim 10

An electronic device comprising:

a processing unit,

a memory for storing instructions and data, and

a data transfer module for accessing data,

said device arranged to create a control flow graph of a computer program having instruction sequences, said control flow graph including basic blocks of instructions, each basic block having a last instruction, said device

further arranged to traverse through the basic blocks in order to detect multiple occurrences of a same instruction sequence which includes said last instruction for each of at least two basic blocks, to create a function including a longest sequence of last instruction sequences common to said at least two basic blocks and which includes said last instruction for each of said at least two basic blocks, said longest sequence from a plurality of sequences having a common instruction sequence of equal or shorter length compared to said longest sequence, said longest sequence including the equal or shorter length sequences of said plurality of sequences and to replace the original occurrences of said instruction sequences in said plurality of sequences with a reference to a proper position in said created function.

Claim 16

An electronic device comprising:

means for processing,

means for storing instructions and data, and

means for accessing data,

said device arranged to create a control flow graph of a computer program having instruction sequences, said control flow graph including basic blocks of instructions, each basic block having a last instruction, said device further arranged to traverse through the basic blocks in order to detect multiple occurrences of a same instruction sequence which includes said last

instruction for each of at least two basic blocks, to create a function including a longest sequence of last instruction sequences common to said at least two basic blocks and which includes said last instruction for each of said at least two basic blocks, said longest sequence from a plurality of sequences having a common instruction sequence of equal or shorter length compared to said longest sequence, said longest sequence including the equal or shorter length sequences of said plurality of sequences and to replace the original occurrences of said instruction sequences in said plurality of sequences with a reference to a proper position in said created function.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: the prior art of record fails to teach or suggest the claimed invention. Specifically, the prior art of record fails to teach or suggest traversing through the basic blocks in order to detect multiple occurrences of a same instruction sequence which includes said last instruction for each of at least two basic blocks, creating a function including a longest sequence of last instruction sequences common to said at least two basic blocks and which includes said last instruction for each of said at least two basic blocks and replacing the original occurrences of said instruction sequences in said plurality of sequences with a reference to a proper position in said created function, as recited in independent claims 1, 8, 10 and 16.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2193

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Wood whose telephone number is (571)-272-3736. The examiner can normally be reached 10:00am - 4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)-272-3756. The fax phone numbers for the organization where this application or proceeding is assigned are (571)273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR systems, see <http://pair-direct.uspto.gov>. For questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.



William H. Wood
Patent Examiner

AU 2193

May 25, 2007